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ON THE

TREATMENT OF ANTHRAX BY PRESSURE.

A CLINICAL LECTURE

DELIVERED IN ST. VINCENT'S HOSPITAL, MARCH 3, 1864.

BY

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ON

THE TREATMENT OF ANTHRAX BY PRESSURE.

GENTLEMEN,—You have heard a good deal in this hospital about the treatment of anthrax by compression, and are now likely to hear more on the subject out of doors, and therefore it may not be amiss to recall your attention to the origin and progress of this contribution to conservative surgery.

In the year 1858 I published, in the fifth volume of the *Dublin Hospital Gazette*, a memoir "On the Treatment of Anthrax by Pressure," and since that time in this hospital no anthrax has been treated by incisions, but in every case pressure alone has been employed.

It is necessary to note this fact, since I perceive it is stated in the current number of the *Dublin Quarterly Journal*, that, for some time subsequent to that date, I had not carried out my own principle to the fullest extent, but had occasionally employed the crucial incision in combination with pressure.

The treatment by compression was gradually suggested to my mind by the consideration of the obvious objections

to the old practice, and the consequent necessity for a fresh investigation of the entire subject.

In the first place, the old mode of treatment was painful, and the infliction of pain is to be avoided in these cases, not merely on account of the immediate suffering, but also since it is productive of considerable shock to the system. As a result of incisions I have frequently seen an approach to syncope in persons exhausted by sleeplessness and pain, so much so, that when combined with the unavoidable hæmorrhage, a recourse was necessary to stimulants for the restoration of the patient.

Again, incisions are not always efficient nor final. After the incisions have been made, there is, no doubt, a relief from suffering, and an apparent amendment in all the symptoms, but the calm is often only temporary. After one or two days the symptoms return, the swelling, the hardness, the dusky redness, and pain may be found to have reëstablished themselves, and there may be the same disposition to the sloughing process as before. The practice of the British school has been, on this recurrence of the symptoms, to repeat the incisions; thus inflicting on the patient a number of fresh wounds, with all their accompanying pain and suffering, and which may even then not succeed in arresting the disease.

Again, it has happened in certain cases that erysipelas of a serious and even fatal character has ensued, while in others secondary deposits of pus have been found in connexion with the typhoid state under which the patient had succumbed. My attention was first called to this fact when a pupil in the Richmond Hospital. I have never forgotten the case. A man was admitted suffering from anthrax; he was of the middle period of life. Mr. Car-

michael, under whose care he was, made the usual free incisions. Sixteen hours after the incisions had been made I was called up to see the man. He was suffering from a fearful rigor. His pulse, before 90, had now risen to 120. The rigor returned on the next day. The pulse became even more rapid, and symptoms of a low typhoid character showed themselves. The man died with all the indications of diffuse inflammation, and on a post-mortem examination being made pus was found in the left knee-joint and in the right pleural cavity. But the case was considered at the time to be of constitutional origin and to be unconnected with the anthrax.

From time to time afterwards other cases presented themselves of a similar character, and I began to ask myself, if it was not possible that these symptoms might not arise from the matter of the anthrax flowing into the fresh wounds?

When we see pupils suffering so seriously from slight wounds received in the prosecution of their studies, wounds productive of diffuse inflammation and even threatening life itself, might we not anticipate serious results in these cases where the constitution of the patient at the same time is so much reduced, as it generally is in those who are the subjects of anthrax?

Some of you may remember the case of one of our pupils, Mr. Fenton, now a successful practitioner, who, while dressing a compound fracture in a state of suppuration, forgot that he had a slight scratch on his finger until he became sensible of pain in the part. For weeks he lay in a private ward in this hospital suffering from low fever; abscesses forming in various parts, and in the end narrowly escaping with his life.

Now with such cases before us—and I have seen many similar ones—it began to occur to my mind that we were not safe in making incisions in the neighbourhood of a depot, where we could not prevent the matter from flowing into the fresh wound. Therefore, I came to the conclusion that the remedy was not only painful and often ineffieacious, but even sometimes dangerous in its results.

Reflecting on these matters I began to think what were the pathologieal conditions of anthrax? Gangrenous cellulitis, with engorgement and obstruction of the surrounding capillary vessels, appear to be the principal elements of the disease.

It is in the capillary system that organic changes take place, and we are often able to relieve this system by stimulants where we cannot do so by other means. Thus in hæmatemesis not of an inflammatory character, we act on the capillaries of the stomach by turpentine; or again, where congestion continues after inflammation has been subdued in the conjunctiva, we find a stimulating application such as vinum opii, or solution of nitrate of silver, is followed by paleness of the part, the capillaries having been thus unloaded.

In epidymitis we do not require the aid of stimulants, as here we can bring compression to bear, and what do we find? The patient, who has been suffering such extreme pain as not to allow the surgeon even lightly to touch the part, finds almost before the strapping has been fully applied complete ease, and can bear the part to be freely handled.

Now, applying these considerations to the case of anthrax, I naturally inquired what was the element of the disease which placed it beyond the reach of general treat-

ment? It appeared to me that it was a purely local difficulty with which I had to contend, and that some local remedy might possibly be contrived to remove it. I remembered, too, the effects of the inverted position on the congestion of a varicose limb, but the prone position produced no effect upon the capillaries of the swelling in the case of anthrax. When, however, I pressed the part with my finger, I found that the dusky redness, that is the congested state of the capillaries, disappeared for the time, but soon returned when the pressure was removed. It then occurred to me that compression, if steadily maintained, might accomplish what position was unable to effect.

In my first experiment I dared not treat the case by pressure alone. Such treatment would have been condemned by every surgeon of the Dublin School. I resolved then to reserve the treatment for a case where incisions had been already tried and had failed, for one of those cases of what we may call secondary anthrax. Here it could not be said that the case would have equally recovered with incisions, for they had been tried and without success.

Accordingly, on a case presenting itself in St. Joseph's ward, of a woman suffering from anthrax, full, free, incisions were made, so free that no doubt could be entertained but that they were amply sufficient to attain all the results expected from the knife. And for two days the patient appeared to benefit by the incisions, the pain and swelling had lessened, and the fever declined. But on the third day I found the redness had extended its boundaries, and the pain and distress had returned. Round the dusky red margin I now drew a pencil of nitrate of silver to mark its present limits, but next day the dusky redness had extended an inch beyond the line I had drawn.

Once again I drew the line, and once more the redness and hardness were found next day to have extended, accompanied by intense burning pain. I now thought the case quite fit for the trial of compression, instead of making fresh incisions, and accordingly applied the plasters in the manner which I shall presently describe. Next morning, instead of the advancing line of dusky redness, the symptoms had all declined, the redness and swelling had receded, and the patient had passed a good night.

The pressure was now continued and carried up to the aperture, through which the slough should come away. The case progressed most satisfactorily, and was soon convalescent.

The nitrate of silver was used, you will observe, merely to mark the progress of the redness, and not, as stated in the journal to which I have already alluded, as part of the treatment.

Now, it is indeed curious that in Dublin any surgeon should inflict the pain of an operation on a patient for anthrax without at least trying pressure previously, since the results of the latter plan were so plainly pointed out so long ago as five years, and yet I believe this has been the common practice in this city. A medical gentleman, with whom I was in attendance a few weeks ago on a case of anthrax, assured me that an acquaintance of his, seen first by a physician and afterwards by a surgeon, both men of reputation, sank on the tenth day of his illness, although he was, as my informant emphatically expressed it, "cut every day until he died."

In France the practice has not escaped notice. An article will be found, No. 5882, in the *Journal Pratique de*

Médecine et Chirurgie, for August, 1860, recording the introduction of this new practice into St. Vincent's Hospital.

Now, with respect to the mode of applying compression to an anthrax. It is very easy of accomplishment if the principle be kept in mind—to maintain and promote the capillary circulation. The compression must be firm, and must begin at the periphery of the swelling and gradually approach its centre.

In the early period of the practice I was accustomed to apply a circular sheet or piece of brown soap plaster spread on leather or cotton cloth, leaving an opening for the discharge of the pus. This succeeded in many instances, but I found that a firmer support was necessary in order to give immediate ease to the patient. I therefore covered this piece with straps of plaster drawn tightly from the neighbouring sound parts, and they by traction exerted a firm degree of compression on the swelling. When the skin of the sound parts is thus drawn together, it will, by its own elasticity in the act of recovering its position with respect to subjacent parts, produce a distinct and appreciable amount of compression on the swelling, which would, no doubt, if visible, be found to be paler, as occurred when pressure of the finger had been previously made upon it. Now this is exactly what we want, and this is what is required by the principle of maintaining and promoting the capillary circulation in the part.

The dressing should be removed every day, and it is invariably observed by the dresser that the pus oozes freely from the centre during the process, and the slough begins and continues to project until it comes away altogether. It is not, however, to the shape or medication of the plasters

that I attach any importance. Simple oblong strips of plaster can be made to effect the object, if applied so as to produce a steady, equal, and firm compression of the parts. I may add, that in some localities, when the tumour was of small size and traction of the sound skin not easily accomplished, I have found a coating of well-made collodion of considerable service, producing, by its contractile properties, a nearly similar result.

We have now seen that the old method by crucial incision is always painful, often inefficient, and occasionally fraught with danger to life. We have also seen that the new method is based on sound physiological and pathological principles. It is, moreover, not only painless in its application, but actually relieves the pain existing at the time; that it is effectual in arresting the progress of the disease, and that the process of cure is more speedy and complete.

We cannot therefore hesitate to pursue a plan which for five years has stood the test of a large experience in this hospital as well as in private practice, and to recommend the treatment of anthrax by compression as a valuable contribution to conservative surgery.

DISTANCE

SOME TIGHT

GUTTERS